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July 3, 1985

Mr. Rodney Gaither  
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230 South Dearborn Street  
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RECEIVED

JUL 3 1985

U.S. EPA, REGION V  
WASTE MANAGEMENT DIVISION  
HAZARDOUS WASTE ENFORCEMENT BRANCH

Re: Johns-Manville Waukegan Disposal Area RI/FS

Dear Mr. Gaither:

This letter summarizes the responses of Johns-Manville to your review comments on the draft RI report on the Johns-Manville Waukegan Disposal Area. The responses outlined in this letter have been incorporated in the final RI report where applicable. These responses follow the order in which your review comments are presented.

#### AIR ASBESTOS STUDY

Ref. Vol 1, p 3-14.

Limited quantity of friable asbestos is present among the waste generated during manufacturing (e.g. baghouse dust, empty or broken raw material bags and cuttings) of some of the mineral panels and sheet goods. All wastes containing friable asbestos are properly bagged and labelled prior to their disposal in the asbestos disposal pit.

Ref. Vol 1, p 5-4

The city of Waukegan's observation on the blowing litter pertains to occasional blowing of pieces of paper and/or refractory insulating material from the waste material disposal pit. This is not a normal occurrence as the disposed waste is regularly graded and compacted. However, at times the adverse weather conditions prohibit grading and compacting of the waste materials and thus permit blowing of clean paper and/or refractory insulating material from the disposed area. The occurrence of such incidents have been minimized through the use of cyclone and snow fencing and berms around the waste disposal cell.

The fire(s) along the eastern side of the site of which Johns-Manville is aware have been man-made recreational fire(s) on Lake Michigan beach area. There is a green belt over 300 foot wide, separating the Lake Michigan Shore line, from the waste disposal area. In November 1984, there was a smoldering fire on the disposal site caused by hot glass waste from the refractory insulation manufacturing process. This resulted in some smoldering of wastes and was put out by waste disposal

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crew of Johns-Manville. Because of the generally non-combustible nature of the waste materials and current disposal practices involving hot glass waste, we feel that the risk to human health and environment through the fire and explosion route from this site is insignificant.

Ref. Vol 1, p.2

Use of a 0.2 micrometer pore diameter filter increases collection efficiency and provides more, not less, information. A 0.2 micrometer filter intercepts some fibers which would not be intercepted by a 0.4 micrometer filter. Thus the use of 0.2 micrometer filters results in somewhat higher counts of asbestos fibers. Therefore, the results of the air sampling test runs presented in the RI report are somewhat higher than what one would expect with the use of 0.4 micrometer pore diameter filters.

Ref. Vol. 1, p.6

For each test run, for each monitoring location, two mean values have been reported. One mean value is for fibers of all lengths and the other for fibers of length greater than 5.0 micrometers.

Ref. Vol II, p. A-4

Johns-Manville cannot explain why its Waukegan Disposal Area was placed on the National Priorities List (NPL). Johns-Manville objected to being placed on the NPL and continues to believe that such action was not appropriate. Please refer to the February 28, 1983 letter to USEPA from Ms. Lown (Volume II, Appendix A, p A-5).

# 1. Interpretation of Asbestos Monitoring Study Results

- o Endangerment Assessment (EA) of the airborne asbestos has been included in the final RI report.
- o Results presented in Tables 7 through 25 of the ORF Report indicate no significant differences in measured total amphibole fiber concentrations between on-site and off-site samples and field blanks. This is due to the fact that the amphibole fiber counts in the air were too low to show any significant differences between on-site and off-site samples and field blanks.
- o We agree that the chrysotile fiber counts of fibers of all lengths were generally higher for on-site locations when compared to those for off-site locations (see Table 24) before and after accounting for observed levels in the field and laboratory blanks. However, as explained in the ORF Report, these higher values were of the same order as those observed in other locations not necessarily related to industrial use of asbestos. Moreover, all values of fibers longer than 5 micrometers were at or very close to the detection limit.

- o Potential for adverse health effects due to long term exposure to on-site asbestos air concentrations has been included in the Endangerment Assessment presented in the final RI report.

2. Air Monitoring Study Objections

- o Potential of exposure of the residents in the vicinity of the Johns-Manville disposal area to the asbestos is addressed in the EA presented in the final RI report.
- o Off-site sampling location 2 (Figure 8) is approximately 5,000 feet west of the active waste disposal area and about 3,000 feet west of the Johns-Manville facilities. (See Figure 3-2 on a scale of 1" = 2,000 ft). The air sampling protocol proposed by USEPA required one (1) off-site sampling location. Johns-Manville suggested the use of three (3) off-site sampling locations to enhance the reliability of the study results and provide additional data. All sampling locations were reviewed and approved by USEPA before the study was initiated.

3. Conditions During Sampling Period

The asbestos air study was carried out in accordance with the specifications in Exhibit 1 to the Consent Order. A period of at least 24 hours was allowed between any air sampling and precipitation activity. USEPA representatives who were present during the field air sampling did not indicate at any time that the weather conditions for the air sampling were not acceptable for purposes of the study. In addition, the location of the site is such that the wind velocity, temperature, humidity and precipitation at the site are significantly influenced by the Lake and can vary substantially even during a prolonged drought and high wind period. We therefore believe that the climatic conditions during the air asbestos study were suitable to yield representative data and that there is no need for further asbestos air sampling.

Wind speed and direction data were obtained by using a wind vane and anemometer equipped with wind direction and velocity recording device. This instrument was installed on the top of the roofing products building on the west side of the site. This location was chosen to obtain true wind direction and velocity measurements uninfluenced by the tall structures at or near the site. The data obtained is therefore representative of the general wind direction and velocity at the site and thus serves its intended purpose.

4. On-Site Sources And Control Activities

Waste Piles: Waste piles as shown in Figure 3-3 and other site maps are the areas where solid waste from the manufacturing of roofing materials, pipes and insulating products was disposed. These wastes were primarily cuttings and waste products from the manufacturing of roofing shingles and asbestos cement pipes and sheets. The asbestos in these waste materials is in the encapsulated or bound form and is not readily releasable to the environment. It is impossible to determine the extent to which the observed asbestos fiber concentrations at locations 1 and 5 were influenced by nearby waste piles.

Fugitive Dust Control Measures:

More than half of the Johns-Manville disposal area is covered by settling basins with virtually negligible fugitive dust emission potential. The management of the active waste disposal areas has been already covered in details on pages 3-14 and 3-15 of the draft RI. The remaining areas on the site consist of waste piles, unpaved roads and settling basin dikes. (The dust from the unpaved roads is suppressed by sprinkling water at least once per week during summer months.) The waste piles and settling basin dikes are composed of waste shingles and pipes which have been deposited in layers and compacted to yield hard surfaces. (These have very minimal potential to emit fugitive dust.) The site is being inspected and managed regularly by the plant supervisory staff.)

On page 3-14 of draft RI the CFR citations have been corrected.

5. Contamination of Blanks

Blank filters invariably contain some asbestos fibers. Although filters with low asbestos contaminants were used, the asbestos fiber counts for the field and laboratory blank filters were in the range of 2 to 10 for fibers of all lengths. However, no asbestos fiber longer than 5 micrometer was detected in any of the blanks. This was true for both chrysotile and amphibole fibers.

The majority of the asbestos fiber counts for the samples were in the same range as for the blank filters. This indicates that practically no asbestos fiber was present in the majority of the samples. This however does not indicate that blank filters were contaminated. If blank filters were contaminated by exposure to an asbestos fiber emission source, then they would have also shown some asbestos fiber counts for fibers longer than 5 micrometers.

6. Non-Uniformity of Asbestos Fiber Deposits on Filters

The comments in the ORF report concerning the non-uniformity of deposits on the filters were made in order to draw attention to what is accepted as a limitation of the analytical method, and not, as the

reviewer suggests as an "attempt to discount the significance of high on-site fiber counts". This aspect of the direct method of sample preparation is now well understood, and can be demonstrated very easily by aerosol generator studies. The comment was made in connectin with the high samples simply because these are the only ones for which it can be demonstrated.

7. On-site Lead Concentrations in Air

Lead levels in air will be measured and compared with the National Ambient Air Quality Standard as outlined in 40 CFR 50.12. The details of the proposed air monitoring and submission of results are included in the letter from KMA, Inc. to you dated June 24, 1985. Section 5.2.4 (page 5-2) of the draft RI report will be modified to reflect the proposed air monitoring study for lead. The results of this study will be used to re-evaluate the risk to human health and environment in the vicinity of the site.

Geotechnical and Hydrological Investigations

- Ref. Vol 1, p. 3-5      About 80 cu yds of waste materials are hauled to the site on a working week-day. These wastes are dumped in a waste disposal pit. A berm is used to minimize wind blowing of light materials. The deposited wastes are periodically (one or more times/week as needed) levelled and compacted.
- About 2 to 3 cu yds of the waste materials containing friable asbestos are bagged, labelled and deposited once per week in the asbestos disposal pit. These are covered with 6" clean soil cover and compacted within 24 hours of dumping.
- The disposal area has received wastes which contained chrome oxide, lead, thiram and xylene. These materials were minor ingredients in batch materials for finished goods produced at this facility.
- Ref. Vol 1, p.3-6      This reference "Summary of the Geology of the Chicago Area", does include general information on the geology of the Waukegan area.
- Ref. Vol 1, p.3-8      Water quality in the uppermost third of the silurian dolomite may be poor due to naturally-occurring oil, gas and H<sub>2</sub>S in the marsh lands.
- Ref. Vol 1, p.3-10     Because local water supplies are primarily from Lake Michioan, the general water quality data on aquifers in the area is limited. The available data from the Illinois State Water Survey is included in Appendix C Volume II of the final RI report.

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Ref. Vol 1, p.3-11

No wild life habitat exists on the adjoining south and west sides of the site. Wildlife habitat does exist to the north of the site within a distance of 500 feet from the Johns-Manville property line fence and over 2000 feet north of the active waste disposal pits. In addition, Lake Michigan on the east side of the site does attract wild ducks and migratory birds.

To date, PCB contamination 3 miles south of the Johns-Manville Disposal Area has not been shown to have contaminated the disposal area. We have deleted the reference to PCB (p.3-11 Vol 1) from Outboard Marine Corporation in the final RI report.

Ref. Vol 1, p.3-14

Lead oxide was used as one of the ingredients in the manufacturing of hard sheeting material used for break liners.

The waste materials containing encapsulated lead oxide were hauled to the waste disposal pits and periodically levelled, compacted and covered.

Ref. Vol 1, p.4-6

The soil boring logs presented in Appendix E Vol II of the RI report show that a clay layer exists underneath the site. This clay layer slopes from west to east and lies at depths of 25 to 39 feet below the ground surface. There is about 22 to 37 feet thick saturated zone, from west to east, over the clay layer (Ref. Vol 1, p.4-17) through which leachates can migrate towards Lake Michigan.

Ref. Vol 1, p.4-14

The point count system is the system for quantification of asbestos content under the USEPA "Interim Method for the Determination of Asbestos in Bulk Insulation Samples". The details of this procedure are presented in Vol II, Appendix G, page G4. In this point counting system an ocular reticle (cross-hair) is used to visually superimpose a point or points on the microscope field of view. The number of points positioned directly above each kind of particle or fiber is recorded. A total of 400 points are superimposed on either asbestos fibers or non-asbestos matrix material using 50 non empty points superimposed on each of the eight different preparations of representative samples. A point is considered non-empty if it is superimposed on asbestos fiber or non-asbestos matrix material. The number of point counts showing asbestos out of 400 points represents the percentage of asbestos in the material. A point count of 0 to 3 designates asbestos level of less than 1%.

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Page 4-14 of the final RI report includes reference to the point count system of asbestos quantification as presented in page G-4 of Appendix G in Volume II.

Ref. Vol 1, p.4-26

Section 4.5.2 page 4-26 Vol 1 of the draft RI report has been modified to indicate that no asbestos fibers were detected by the phase contract microscopy in any of the ground water samples. Also the reference to the non-detectable limit of 50,000 fibers/l has been eliminated. Further it has been added that the electron microscopy has identified presence of asbestos fibers in the ground water as well as in the Lake Michigan shore waters. These results are presented in Technical Memorandum # M-1, "Asbestos Analysis of Water Samples by Electron Microscopy". Johns-Manville Disposal Area, Waukegan, Illinois submitted to USEPA in June, 1985, and in Appendix J of final RI report Volume II. The observed range of 6 to 12 million fibers/l in the ground water samples and 5.5 to 19 million fibers/l in the Lake Michigan Shore waters are similar to those reported in the literature (see Appendix J) for tap water and commercial beverages..

#### OTHER AREAS OF CONCERN:

##### Lead transport off-site through extreme wave actions:

No wave action transportation of any of the waste materials disposed at the Johns-Manville site has occurred since the use of the site in the early twenties. The elevated location of the lead bearing wastes, the presence of lead in the bound form, the large isolation distance of the waste deposits from the Lake shore lines, the presence of intervening vegetation and shrubbery and roadway between the waste deposits and the Lake Michigan shore line are expected to prohibit transport of lead bearing wastes to Lake Michigan water by extreme wave actions in the future. This pathway of exposure was considered and dropped from further consideration because of the above stated reasons.

##### Heated water discharge canal on the Utility Property:

Figure 4-6, Volume I of draft RI report shows geothermal contours based on the observed temperature reading of the ground water using the five monitoring wells. Based on this data, the heated water discharge on the utility appears to represent ground water recharge.

##### Ground water movement directions:

The interpretation of the ground water movement directions outlined in your review comments are quite conceivable considering seepage from the settling ponds. However all ground water from the site should ultimately flow to the east to Lake Michigan.

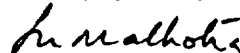
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CONCLUSIONS AND RECOMMENDATIONS OF DRAFT RI REPORT:

1. Significance of on-site chrysotile fiber counts has been included in the final RI report as part of the Endangerment Assessment.
2. Current management practices for controlling the release of fugitive dust are presented in the response to Item 4 of your review comments.
- 3,5&7 On-site lead monitoring in the air is proposed to be conducted in the last week of July and first week of August, 1985. Further details are presented in the response to Item 7 of your review comments and KMA's June 24, 1985 letter addressed to you.
4. The air monitoring study was conducted according to the specifications established by USEPA and the results observed are representative of the site conditions. Further, the results are somewhat conservative because of the use of 0.2 micrometer pore size filters as opposed to the 0.4 micrometer pore size filters generally used. We therefore do not agree with your suggestion that additional air monitoring for asbestos be performed.
6. Additional data on the anions using ground water and Lake Michigan Shore water samples is being collected as discussed in KMA's June 24, 1985 letter addressed to you.
8. The final RI report with responses to your review comments where appropriate is being mailed to you along with this letter. The time schedule for the additional field work and report on the findings is presented in KMA's June 24, 1985 letter addressed to you.

Please feel free to contact me if you have any questions on any of the responses included in this letter.

Sincerely yours,



S. K. Malhotra, PhD., P.E.

cc: Marvin Clumpus, P.E.  
Project Coordinator  
Manville Service Corporation